1-24-06

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **L. B. Mummert, et al**

Express Mail: EQ 088973105 US
Date: January 23, 2006

Serial No.:   **09/692,596**

Filed: **October 19, 2000**

Docket No.:   **YOR920000461-US1**

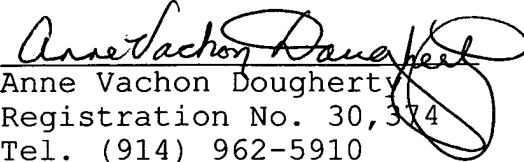COMMISSIONER FOR PATENTS
Alexandria, VA 22313-1450

Sir:

In response to the **Notification of Non-Compliant Appeal Brief,** Appellants submit herewith an **Appeal Brief** in the above-identified Application. This response is being filed one month from the Notification date of December 21, 2005, since the 21st of January fell on a Saturday. This communication should be understood as a Petition for Extension of Time, should one be necessary.

The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to **Deposit Account No. 50-0510. A duplicate copy** of this sheet is enclosed.

X $500.00 for filing a brief in support of an appeal in accordance with 37 CFR 41.20(b)(2), **unless already charged based on submission of 03 October 2005.**

X   Any additional filing fees required under 37 CFR §1.16.

X   Any patent application processing fee under 37 CFR §1.17.

Respectfully submitted,
L. B. Mummert, et al

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Serial No. 09/692,596

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of :	January 23, 2006
L. B. MUMMERT, et al	Group Art No.: 2157
Serial No.: 09/692,596	Examiner: Gregory Todd
Filed: October 19, 2000	Anne Vachon Dougherty
Title: SYSTEM AND METHOD TO IMPROVE SERVICE IN A GROUP OF SERVERS	3173 Cedar Road Yorktown Hts, NY 10598

Board of Patent Appeals and Interferences
Washington, D.C. 20231

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF (37 CFR 41.37)

In response to the Notification of Non-Compliant Appeal Brief dated December 21, 2005, Appellants submit, herewith, an Appeal Brief.

Appellants appeal to the Board of Patent Appeals and Interferences from the decision dated May 3, 2005 of the

Primary Examiner finally rejecting Claims 1-20 in the above-identified patent application, and respectfully request that the Board of Patent Appeals and Interferences consider the arguments presented herein and reverse the Examiner's rejection.

I. REAL PARTY IN INTEREST

The appeal is made on behalf of Applicants who are real parties in interest with respect to the subject patent application.

II. RELATED APPEALS AND INTERFERENCES

There are no pending related appeals or interferences with respect to the subject patent application.

III. STATUS OF CLAIMS

There are twenty (20) claims pending in the subject patent application, numbered 1-20. No claims stand allowed. All of Claims 1-20 stand rejected.

A complete copy of the claims involved in the appeal is attached in the Claims Appendix hereto.

IV. STATUS OF AMENDMENTS

The status of the prosecution of the application is as follows:

October 19, 2000	-	Application filed
November 5, 2004	-	Office Action
February 7, 2005	-	Amendment filed
May 3, 2005	-	Final Office Action
July 5, 2005	-	Amendment After Final with Request for Reconsideration
July , 2005	-	Advisory Action refusing entry of the Amendment After Final
August 1, 2005	-	Notice of Appeal filed

V. SUMMARY OF INVENTION

The present invention is directed to an apparatus, program storage device, and a method for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned

workload units. The claimed method comprises the steps of assigning a plurality of impact values, one impact value for each workload unit assigned for each of the plurality of computing systems (see: Fig. 8, steps 804-805 and accompanying description on page 19 of the Specification), wherein the assigning of each impact value comprises determining a change in system expiration date should the workload unit be removed from the system; and assessing the workload based on the impact values.

An impact value is assigned for each workload unit, wherein a workload unit is expressly defined for the application as "a subset of the workload", the workload being "the set of identifiable tasks that execute in the processing system" (see: page 8, line 19-page 9, line 3). For each subset of the workload, an impact value is assigned, representing the change in system expiration date that would occur if the workload unit was removed from the system. The term "expiration date" is the date when the server workload is expected to exceed its capacity because of growth in workload. The expiration date may be calculated using life expectancy, capacity space, or other

method, as detailed in the Specification on page 11, lines
1-18.

VI. STATEMENT OF ISSUE ON APPEAL

There following issue is on appeal:

(1) whether the Examiner erred in refusing to enter
the **Amendments to the Claims** submitted in the
Amendment After Final dated July 5, 2005, which
amendments were submitted to place the claims in
better condition for appeal; and

(2) whether the Examiner erred in rejecting Claims
1-20 as anticipated by the Borowsky patent.

VII. ARGUMENT

ARGUMENT (1)

Appellants respectfully assert that the Examiner erred
in refusing to enter the **Amendments to the Claims** which were
submitted in the Amendment After Final dated July 5, 2005.

Appellants expressly stated, on pages 1 and 8 of the Amendment After Final, that the **Amendments to the Claims** were made "to present rejected claims in better form for consideration on appeal". Appellants aver that the amendments, specifically to independent Claims 1, 10 and 12, were made to improve the readability of the claims. Appellants assert that the amendments did not change the scope of the claims, and that the amendments would not necessitate a new search.

Appellants believe that the Examiner erred in refusing to enter the amendments. Appellants respectfully request that the Board of Patent Appeals and Interferences overrule the Examiner's refusal to enter the amendments and that the amendments be entered.

ARGUMENT (2)

With regard to issue (2), Appellants respectfully contend that the Examiner has erred in rejecting Claims 1-20 as anticipated by the teachings of the Borowsky patent.

The present application claims an apparatus, program storage device, and a method for evaluating workload across a processing environment having a plurality of computer

systems each having a plurality of assigned workload units, wherein the method comprises the steps of assigning a plurality of impact values, one impact value for each workload unit assigned for each of the plurality of computing systems, wherein the assigning of each impact value comprises determining a change in system expiration date should the workload unit be removed from the system; and assessing the workload based on the impact values.

As discussed above, an impact value is assigned for each workload unit, wherein a workload unit is expressly defined for the application as "a subset of the workload", the workload being "the set of identifiable tasks that execute in the processing system" (see: page 8, line 19-page 9, line 3). For each subset of the workload, an impact value is assigned, representing the change in system expiration date that would occur if the workload unit was removed from the system. The term "expiration date" is the date when the server workload is expected to exceed its capacity because of growth in workload. The expiration date may be calculated using life expectancy, capacity space, or other method, as detailed in the Specification on page 11, lines 1-18.

Appellants respectfully point out that while the manner of calculating the expiration date for the system may be flexible, Appellants are not claiming a manner of calculating expiration date for a system. Appellants are claiming a system and method and program storage device for evaluating workload across a processing environment, and it is the assigning of an impact value as the determined change in expiration date for each workload unit that is a claim feature.

The 102 reference, the Borowsky patent, is directed to a method and apparatus for implementing Quality of Service (QoS) guarantees in designing data storage systems. Borowsky estimates workload for a data storage system in terms of time and then determines whether the estimate would fall within the Quality of Service guarantees desired for that data storage system. Borowsky provides W(T) to represent the "work generated by the combined workload 86" (Col. 7, lines 25-26) and teaches that "W(T) is a random variable with a probability distribution" (Col. 7, lines 30-31). As expressly taught by Borowsky in Col. 7, lines 40-43, "[t]he units of the workload distribution W(T) is in

terms of time, wherein it is determined the total length of time for the host 84 to complete the work."

Once Borowsky has estimated the total time, it then compares the length of time for the p-quantile of the workload distribution to a preset value, "bound T" which is based on the QoS guarantee. If the length of time of the p-quantile of the workload distribution $Wp(T)$ is less than the bound T, then the condition is met" (Col. 7, lines 43-45). If the time estimate exceeds bound T, then the host would not meet the QoS guarantee for the workload.

ARGUMENT 2(a) **Independent Claims 1, 10 and 12 and dependent Claims 4 and 13**

Appellants respectfully assert that the Borowsky patent does not teach or suggest the invention as claimed in independent Claims 1, 10 and 12. With specific reference to the claim language, Borowsky does not teach a step or means for assigning a plurality of impact values, one impact value for each workload unit assigned for each of the plurality of computing systems, wherein the assigning of each impact value comprises determining a change in system expiration date should that workload unit be removed from the system.

Borowsky does not look at separate workload units as they relate to the total time estimate. Borowsky simply determines or estimates the total length of time for a host to complete work.

Borowsky does not assign an impact value for each workload unit related to the expiration date when a server workload would be expected to exceed capacity. What Borowsky does is provide a "random variable with a probability distribution" which is loosely based on workload specifications 26. The workload specifications are defined at Col. 4, lines 21-42 as data on the past performance or estimated performance of systems under "typical loads."

Borowsky does not determine an impact unit for each actual workload unit; but, rather, estimates a probability distribution for a combined workload. In fact, Borowsky expressly teaches that "[i]n most instances, the p-quantile of the workload distribution W(T) cannot be computed directly" and is, instead, estimated for the workload (Col. 7, lines 57-Col. 8, lines 8).

Appellants conclude, therefore, that the Borowsky patent does not anticipate the claim step of or means for

assigning a plurality of impact values, one for each workload unit.

Appellants further assert that the Borowsky patent does not teach or suggest the second step or means for assessing the workload based on the impact values. Borowsky does not assess workload based on its own workload distribution value, let alone on impact values related to a change in system expiration date. Borowsky simply estimates a total length of time and compares it to a threshold (bound T). If the total length of time exceeds "bound T", then a new estimate is done for a different workload.

While Borowsky uses the term "reassesses", the "reassessment" of workload, it is neither based on its calculated workload distribution estimate nor on impact values. Rather, Borowsky simply selects a different workload and performs a new estimate of the total length of time for that workload. Again, the estimate is for the combined workload and not individual workload units.

The Examiner has further contended that Borowsky anticipates the sorting of workload units based on impact values into a sorted impact list, as is claimed in Claims 4 and 13. Appellants maintain that Borowsky does not teach or

suggest assigning impact values and, clearly, therefore, would not teach or suggest sorting impact values. The Examiner has cited the passage from Col. 8, lines 26-67 and specifically the "queue" described therein against the claims. The cited teachings state that requests may be queued and that queue delays may occur. There is nothing in the cited passage which teaches or suggests assigning impact values and sorting assigned impact values.

It is well established under U. S. Patent Law that, for a reference to anticipate claim language under 35 USC 102, that reference must teach each and every claim element *(In re Bond,* 910 F. 2d 831, 832, 15 U.S.P.Q. 2d 1566, 1567 (Fed. Cir. 1990)). Since the Borowsky patent does not teach steps or means for assigning a plurality of impact values, one impact value for each workload unit assigned for each of the plurality of computing systems, wherein the assigning of each impact value comprises determining a change in system expiration date should the workload unit be removed from the system; or for assessing the workload based on the impact values; it cannot be maintained that Borowsky anticipates the invention as set forth in the independent claims, Claims 1, 10, and 12. Further, Borowsky doe not teach steps or

means for sorting assigned impact values, as is recited in Claims 4 and 13.

In the **Response to Arguments** section of the Final Office Action, the Examiner stated that "Borowsky teaches plural workloads". Appellants agree that Borowsky teaches that the combined workload is made up of independent workloads (see: e.g., the paragraph found in Col. 8 from lines 26-42); however, the cited teachings clearly show that Borowsky estimates the p-quantile distribution and time for the overall work and not for individual workload units.

The Examiner further stated that Borowsky utilizes the workload library information for typical workloads. Appellants note, as discussed above, that the Borowsky workload specifications are not impact values for individual workload units; but comprise, as defined at Col. 4, lines 21-42, data on the past or estimated performance of systems under "typical loads." Again, Borowsky is dealing with performance for overall combined workloads, and not workload units. Moreover, Borowsky is using data gathered or estimated from past performance of "typical" overall workloads and not for actual workloads or workload units which are to be performed.

Finally, the Examiner concluded that "Borowsky teaches an 'expiration date' of a system and workload" based on the teachings found in Col. 6 from line 6-line 52. In the cited teachings, Borowsky describes the "virtual store" which maintains client-selected attributes for which level of QoS is required by the client. Clearly the client's quality of service attributes do not anticipate the system's expiration date, let alone the impact value which is the change in system expiration date for a workload unit that is a subset of the overall workload. Borowsky teaches that "one of the quality-of-service attributes associated with capacity planning for the target system 80 is in the form of 'P% of all requests must achieve a response time of less than T seconds'" (see: Col. 6, lines 40-43). Appellants respectfully argue that Borowsky's mention of "capacity planning" does not teach or suggest evaluating workload by assigning an impact value for a subset workload unit, as taught and claimed by the present application.

ARGUMENT 2(b) **Claims 2, 3, 19 and 20**

Appellants rely on the arguments set forth above with regard to the claim features set forth in Claim 1, from

which Claims 2 and 3 depend and in Claim 12, from which Claims 19 and 20 depend.

The Examiner has additionally cited the teachings found in Borowsky at Col. 5, lines 27-47 and Col. 6, lines 3-29 against Claims 2 and 19. The passage at Col. 5, lines 27-47 states that the Borowsky system can use workload measurements to re-evaluate inputs and generate a modified assignment or modified configuration. Borowsky further states that "changes in the workload or device configurations, such as a long-term device failure, can also be corrected through the use of the workload measurements". The cited passage does not teach or suggest determining one impact value for each workload unit assigned for each of the plurality of computing systems, wherein the assigning of each impact value comprises determining a change in system expiration date should the workload unit be removed from the system, wherein the changes in system expiration date is determined based on system life expectancy. Borowsky does not mention system life expectancy, but merely alludes to the fact that long-term device failure occurs. Clearly Borowsky is not teaching determining a change in system

expiration date based on system life expectancy in the cited passage from Col. 5.

Similarly, the cited passage from Col. 6, lines 3-29 does not teach determining a change in system expiration date based on system life expectancy. The cited passage from Col. 6 teaches that the Borowsky system maintains a set of availability and reliability metrics, referred to as "quality-of-service attributes", which are desired by the clients and which are defined as "high-level storage-system goals or requirements". The attributes do not comprise impact values for individual workload units, do not comprise a system expiration date, do not comprise a system life expectancy. Clearly Borowsky does not teach or suggest determining a change in system expiration date based on system life expectancy as is expressly recited in Claims 2 and 19.

The same passage, from Col. 6, lines 3-29 is cited against the language of Claims 3 and 20, which recite that the change is system expiration date is determined based on capacity space. Again, Appellants note that the cited passage teaches that the Borowsky system maintains a set of availability and reliability metrics, referred to as

"quality-of-service attributes", which are desired by the clients and which are defined as "high-level storage-system goals or requirements". Borowsky states that the attributes may include capacity. Borowsky does not, however, teach or suggest that the client-defined desired capacity attribute be used to determine the change is system expiration date as an impact value for a workload unit, as is claimed in Claims 3 and 20.

ARGUMENT 2(c) *Claims 5 and 14*

The Examiner has stated that Claim 5 recited "further comprising altering the processing environment to change the expiration workload in the dates of at least two of said plurality of computer systems" and cites Col. 6, lines 40-52 against the claim. Appellants first note that the Examiner is rejecting language which is not found in Claim 5. Claim 5 recites altering the workload in the processing environment to change the expiration dates of at least two of the plurality of computer systems; and does not recite changing the expiration workload in dates. Appellants further argue that the cited passage does not provide any teachings which anticipate the language of method Claim 5,

or of corresponding device Claim 14. The cited passage discusses that the Borowsky quality-of-service attribute associated with capacity planning may require that a pre-set percentage of all requests must achieve a target response time. There is nothing in the cited passage which either teaches or suggests altering the workload to change the expiration dates of at least two of a plurality of computer systems, as is claimed by Claims 5 and 14. Appellants reiterate that an anticipate rejection cannot be maintained unless the cited reference teaches each and every claim feature *(In re Bond,* 910 F. 2d 831, 832, 15 U.S.P.Q. 2d 1566, 1567 (Fed. Cir. 1990)).

ARGUMENT 2(d) *Claims 6, 7, 8, 9, 15, 16, 17, 18*

Claims 6 and 15 recite the method and device of Claims 1 and 12 respectively wherein the method further comprises comparing the expiration date of each of said plurality of computing systems to at least one target planning date for servicing each of said plurality of computing systems. The remaining claims depend, directly or indirectly, from Claim 6 or Claim 15.

The Examiner has rejected Claim 6 citing the passage found at Col. 6, lines 40-52 relating to "planning response time for target system." The cited passage was discussed above, since it was also cited against the language of Claims 5 and 14. The cited passage discusses that the Borowsky quality-of-service attribute associated with capacity planning may require that a pre-set percentage of all requests achieve a target response time. The cited passage does not mention an expiration date of a computing system, does not mention a target planning date for servicing a computing system, and does not teach comparing an expiration date with a target planning date. There is nothing in the cited passage that anticipates the claim language. Appellants conclude that the language of Claims 6 and 15, and of Claims 7-9 and 16-18 which depend respectively therefrom, is not anticipated by the cited teachings of the Borowsky patent.

The passage found in Col. 7, lines 30-67 is additionally cited against the language of Claims 8 and 9. Appellants have reviewed the cited passage and find no mention of creating From and To lists relative to a target planning date for servicing a computing system, no mention

of reassigning workload units from computer systems on the From list to computer systems on the To list based on impact values, and no mention of calculating new expiration dates after the reassigning. Clearly, therefore, Borowsky does not anticipate the language of Claims 8, 9, 17 or 18.

CONCLUSION

Appellants respectfully assert that the Examiner has erred in refusing to enter the **Amendments to the Claims** and has erred in rejecting all of the pending claims under 35 USC 102(e) as anticipated by the Borowsky patent. Appellants request that the decisions of the Examiner be overturned by the Board and that the claims, including the unentered amendments, be passed to issuance.

Respectfully submitted,
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CLAIMS APPENDIX

1. A method for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units comprising the steps of:

assigning a plurality of impact values, one to each workload unit assigned for each of the plurality of computing systems, said assigning comprising determining a change in system expiration date should each one of said plurality of workload units be removed from the system; and

assessing the workload based on said impact values.

2. The method of Claim 1 wherein the change in system expiration date is determined based on system life expectancy.

3. The method of Claim 1 wherein the change in system expiration date is determined based on capacity space.

4. The method of Claim 1 further comprising sorting said workload units based on said impact values into a sorted impact list.

5. The method of Claim 1 further comprising altering the workload in the processing environment to change the expiration dates of at least two of said plurality of computer systems.

6. The method of Claim 1 further comprising comparing the expiration date of each of said plurality of computing systems to at least one target planning date for servicing each of said plurality of computing systems.

7. The method of Claim 6 further comprising altering the workload in the processing environment to change the expiration date relative to the target planning date for at least two of said plurality of computer systems.

8. The method of Claim 6 further comprising the steps of:
    creating a From list of computer systems for which the expiration date precedes the at least one planning date;

creating a To list of computer systems for which the expiration date is later than said at least one planning date; and

reassigning workload units from computer systems on said From list to computer systems on said To list based on said impact values.

9. The method of Claim 8 further comprising calculating new expiration dates for computer systems on said From and said To lists after said reassigning.

10. Apparatus for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units comprising:

an administrative processor comprising:

an impact value component for assigning a plurality of impact values, one to each workload unit assigned to each of the plurality of computing systems, by determining a change in system expiration date should each one of said plurality of workload units be removed from the system; and

a processing component for assessing the workload based on said impact values.

11. The apparatus of Claim 10 further comprising at least one storage location accessible by the administrative processor for storing data relating to said plurality of computer systems.

12. A program storage device readable by machine tangibly embodying a program of instructions executable by the machine to perform method steps for evaluating workload across a processing environment having a plurality of computer systems each having a plurality of assigned workload units, said method comprising the steps of:

assigning a plurality of impact values, one to each workload unit assigned for each of the plurality of computing systems, by determining a change in system expiration date if each one of said plurality of workload units is removed from the system; and

assessing the workload based on said impact values.

13. The device of Claim 12 wherein the method further comprises sorting said workload units based on said impact values into a sorted impact list.

14. The device of Claim 12 wherein the method further comprises altering the workload in the processing environment to change the expiration dates of at least two of said plurality of computer systems.

15. The device of Claim 12 wherein the method further comprises comparing the expiration date of each of said plurality of computing systems to at least one target planning date for servicing each of said plurality of computing systems.

16. The device of Claim 15 wherein the method further comprises altering the workload in the processing environment to change the expiration date relative to the target planning date for at least two of said plurality of computer systems.

17. The device of Claim 16 wherein the method further comprises the steps of:

creating a From list of computer systems for which the expiration date precedes the at least one planning date;

creating a To list of computer systems for which the expiration date is later than said at least one planning date; and

reassigning workload units from computer systems on said From list to computer systems on said To list based on said impact values.

18. The device of Claim 17 wherein the method further comprises calculating new expiration dates for computer systems on said From and said To lists after said reassigning.

19. The device of Claim 12 wherein the change in system expiration date is determined based on system life expectancy.

20. The device of Claim 12 wherein the change in system expiration date is determined based on capacity space.

EVIDENCE APPENDIX

No evidence submitted pursuant to 37 CFR 1.130, 37 CFR 1.131, or 37 CFR 1.132.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.